THE BYRON SCANDAL.

THE SEPARATION.

The circumstances of the separation between Lord Byron and his wife are tolerably well known. He never loved her, and at the time of the birth of their daughter, Augusta Ada, he treated her, as he himself testifies, with neglect and cruelty. The child was born on the 10th of December, 1815. On the 6th of the next month Lady Byron received a written request from her husband that she should leave London immediately. Moore gives the following account of what followed:

"It was a few weeks after the latter communication between us that Lady Byron adopted the resolution of parting from him. She had left London at the latter end of January, on a visit to her father's house in Leicestershire, and Lord Byron was in a short time to follow her. They had parted in the utmost kindness. She wrote him a letter full of playfulness and affection on the road; and immediately on her arrival at Kirkby Mallory, her father wrote to acquaint Lord Byron that she would return to him no more."

A fuller explanation of the affair is given in the statement of Lady Byron, published in 1830, and quoted by Mrs. Stowe. She mentions that her departure was in accordance with her husband's commands. She thought him insane—her impressions being derived, in a great measure, from the communications made to her by his nearest relatives and personal attendant, she herself having for some time seen little of him. She consulted Dr. Baillie, who, without seeing his lordship, advised her, as an experiment, to treat him with all possible mildness and complaisance. That was the reason why she wrote to him in a playful and tender strain. Afterward she requested Dr. Baillie and Dr. Lushington to have an interview with the poet, for the purpose of determining his state of mind. Byron's account of their visit is as follows:

I had been shut up in a dark street in London, writing "The Siege of Corinth," and had refused myself to every one till it was finished. I was surprised one day by a doctor and a lawyer almost forcing themselves at the same time into my room; I did not know till afterward the real object of their visit. I thought their questions singular, frivolous, and somewhat importunate, if not impertinent; but what should I have thought if I had known that they were sent to provide proofs of my insanity? I have no doubt that my answers to these emissaries' interrogations were not very rational or consistent, for my imagination was heated by other things; but Dr. Baillie could not conscientiously make me out a certificate for Bedlam, and perhaps the lawyer gave a more favorable report to his employers. The doctor said afterward he had been told that I always looked down when Lady Byron bent her eyes on me, and exhibited other symptoms equally infallible, particularly those that marked the late king's case so strongly. * * *

In "Don Juan," canto i., stanza 27, he describes the affair again:

For Inez call'd some druggists and physicians,
And tried to prove her loving lord was *mad*,
But as he had some lucid intermissions,
She next decided he was only *bad*;
Yet when they ask'd her for her depositions,
No sort of explanation could be had,
Save that her duty both to man and God
Required this conduct—which seem'd very odd.

Lady Byron continues the story in the following words, not quoted by Mrs. Stowe:

It has been argued, that I parted from Lord Byron in perfect harmony; that feelings, incompatible with any deep sense of injury had dictated the letter which I addressed to him; and that my sentiments must have been changed by persuasion and interference, when I was under the roof of my parents. These assertions and inferences are wholly destitute of foundation. The accounts given me after I left Lord Byron by the persons in constant intercourse with him, added to those doubts which had before transiently occurred to my mind, as to the reality of the alleged disease, and the reports of his medical attendant were far from establishing the existence of any thing like lunacy. Under this uncertainty, I deemed it right to communicate to my parents, that if I were to consider Lord Byron's past conduct as that of a person of sound mind, nothing could induce me to return to him. It therefore appeared expedient both to them and myself to consult the ablest advisers. For that object, and also to obtain still further information respecting appearances which seemed to indicate mental derangement, my mother determined to go to London. She was empowered by me to take legal opinions on a written statement of mine, though I had then reasons for reserving a part of the case from the knowledge even of my father and mother. Being convinced by the result of these inquiries, and by the tenor of Lord Byron's proceedings, that the notion of insanity was an illusion, I no longer hesitated to authorize such measures as were necessary, in order to secure me from being ever again placed in his power. Conformably with this resolution, my father wrote to him on the 2d of February, to propose an amicable separation. Lord Byron at first rejected this proposal; but when it was distinctly notified to him, that if he persisted in his refusal, recourse must be had to legal measures, he agreed to sign a deed of separation. Upon applying to Dr. Lushington, who was intimately acquainted with all the circumstances, to state in writing what he recollected upon this subject, I received from him the following letter, by which it will be manifest that my mother cannot have been actuated by any hostile or ungenerous motives towards Lord Byron.

"MY DEAR LADY BYRON: I can rely upon the accuracy of my memory for the following statement: I was originally consulted by Lady Noel on your behalf while you were in the country. The circumstances detailed by her were such as justified a separation, but they were not of that aggravated description as to render such a measure indispensable. On Lady Noel's representation, I deemed a reconciliation with Lord Byron practicable, and felt, most sincerely, a wish to aid in effecting it. There was not, on Lady Noel's part, any exaggeration of the facts, nor so far as I could perceive, any determination to prevent a return to Lord Byron; certainly none was expressed when I spoke of a reconciliation. When you came to town—in about a fortnight, or perhaps more, after my first interview with Lady Noel—I was for the first time informed by you of facts utterly unknown, as I have no doubt, to Sir Ralph and Lady Noel. On receiving this additional information my opinion was entirely changed: I considered a reconciliation impossible. I declared my opinion, and added that, if such an idea should be entertained, I could not, either professionally or otherwise, take any part toward effecting it. Believe me, very faithfully yours, STEPHEN LUSHINGTON.

"*Great George-st.*, Jan. 31, 1830."

Whatever the secret charge brought forward at this interview may have been, it is evident that Dr. Lushington was persuaded of its truth and its gravity. Lord Byron always professed to be ignorant of the motives of his wife's conduct, and complained that neither she nor her friends would make any specific charge which would give him an opportunity of self-vindication or atonement. He blamed himself severely for his general behavior, praised his wife in the warmest terms, and declared that for a year he cherished the hope of reconciliation. But later in life, when this hope had left him, he manifested an extremely bitter feeling toward his wife, and satirized her with great coarseness in several of his poems. If we are to suppose that he was sincere in the expression of these various feelings—in his hope of reconciliation and in his subsequent bitterness—it will be very hard to believe that he had really been guilty of the awful crime of which he is accused. Still more difficult will it be to reconcile with the consciousness of such guilt the following lines, written a few months after the separation "On hearing that Lady Byron was ill:"

I have had many foes, but none like thee;
For 'gainst the rest myself I could defend,
And be avenged, or turn them into friend;

But thou in safe implacability
Hast naught to dread—in thy own weakness shielded,
And in my love which hath but too much yielded,
And spared for thy sake some I should not spare—
And thus upon the world—trust in thy truth,
And the wild fame of my ungovern'd youth—
On things that were not, and on things that are—
Even upon such a basis hast thou built
A monument, whose cement hath been guilt!
The moral Clytemnestra of thy Lord,
And hew'd down with an unsuspected sword,
Fame, peace, and hope—and all the better life
Which, but for this cold treason of thy heart,
Might still have risen from out the grave of strife,
And found a nobler duty than to part.

MRS. LEIGH.

Mrs. Leigh, whose name is coupled with the poet's in this horrible story, was his half sister, and some five or six years his senior. His father had run off to the continent with the wife of Lord Carmarthen, and married the lady after the Marquis had obtained a divorce from her. Augusta was the only fruit of this union. The poet was the offspring of a second marriage. Brother and sister did not know each other—indeed they rarely met—until after Augusta's marriage to Colonel Leigh. Then there sprang up between them a very tender affection, and Byron spoke of her as the person whom he loved best of all the world. We find a passage in his diary, under date of March 22, 1814, in which speaking of a lady whom he had admired at a party, he says: "After all there may be something of association in this. She is a friend of Augusta's, and whatever she loves I can't help liking." And again: "Augusta wants me to make it up with Carlisle. I have refused *every* body else, but I can't deny her anything; so I must e'en do it, though I had as lief 'drink up Eisel—eat a crocodile.' Let me see—Ward, the Hollands, the Lambs, Rogers, &c. &c.—everybody more or less have been trying for the last two years to accommodate this couplet quarrel to no purpose. I shall laugh if Augusta succeeds." Yet, if Mrs. Stowe's story is true, it must have been about this time that the "adulterous intrigue" began. Such expressions in the diary do not savor of it, still less does the poem "To Augusta," written soon after the separation and Byron's consequent departure from England:

My sister! my sweet sister! if a name
Dearer and purer were, it should be thine.
Mountains and seas divide us, but I claim
No tears, but tenderness to answer mine.
Go where I will, to me thou art the same—
A loved regret which I would not resign.
There yet are two things in my destiny,—
A world to roam through, and a home with thee.

The first were nothing—had I still the last
It were the haven of my happiness;
But other claims and other ties thou hast,
And mine is not the wish to make them less.
* * * * * * * * * *
I can reduce all feelings but this one;
And that I would not;—for at length I see
Such scenes as those wherein my life begun,
The earliest—even the only paths for me—
Had I but sooner learnt the crowd to shun,
I had been better than I now can be;
The passions which have torn me would have slept;
I had not suffer'd, and *thou* hadst not wept.
* * * * * * *
For thee, my own sweet sister, in thy heart
I know myself secure, as thou in mine;
We were and are—I am, even as thou art—
Beings who ne'er each other can resign;
It is the same, together or apart,
From life's commencement to its slow decline
We are entwined—let death come slow or fast,
The tie which bound the first endures the last!

They never met afterward.

THE MISTAKE OF A YEAR.

It is objected that either Mrs. Stowe or Lady Byron has made a misstatement grave enough to cast discredit upon the whole story, in representing that the adulterous intrigue was carried on for two years after the marriage, whereas their wedded life lasted only one year, and immediately after the separation Byron left England and never saw his sister again. A more careful reading of the passage in question will show, we think, that Mrs. Stowe's statement amounts merely to this, that the intrigue lasted two years in all. Elsewhere she says that it began before marriage. The following is the doubtful passage:

"Many women would have been utterly crushed by such a disclosure; some would have fled from him immediately, and exposed and denounced the crime. Lady Byron did neither. When all the hope of womanhood died out of her heart, there arose within her, stronger, purer, and brighter, that immortal kind of love such as God feels for the sinner—the love of which Jesus spoke, and which holds the one wanderer of more account than the ninety and nine that went not astray. She would neither leave her husband nor betray him, nor would she for one moment justify his sin; and *hence came two years of convulsive struggle, in which sometimes, for a while, the good angel seemed to gain ground, and then the evil one returned with sevenfold vehemence.*"

By a singular mistake the critics almost universally have understood this to be a two years' "convulsive struggle" in Lady Byron's own breast, or between Lady Byron and her husband. It will be seen, however, that Mrs. Stowe only represents the poet himself as struggling two years with his sin. It is clumsily expressed, but the writer—or, at any rate, her informant—probably did not mean to say that the struggle lasted for two years after Lady Byron discovered the intrigue.

LADY BYRON'S CHARACTER.

As to Lady Byron's character, there are hardly two opinions. Mrs. Stowe, we dare say, does not rate her too high. The lately published "Diary and Correspondence of Henry Crabb Robinson" contains frequent mention of her as she was during the period of Mrs. Stowe's intimacy, in the latter part of her life. "I consider her," says this acute observer, "one of the best women of the day. Her means and her good-will are both great. 'She lives to do good,' says Dr. King, and I believe this to be true." . . . "I was much pleased with Lady Byron. She is a very remarkable woman, and is most generous and high-minded."

HER MENTAL CONDITION.

Dr. King writes to Robinson in February, 1854: "Lady Byron is now quite recovered. She is always feeble, and obliged to husband her strength, and calculate her powers; but her mind is ever intact, pure, and lofty. It seems to pour forth its streams of benevolence and judgment even from the sick-bed; a perennial fountain. Her state of mind has always given me confidence in her severest illnesses. Yet her power of bearing fatigue occasionally, as during the illness and death of her daughter, is as wonderful."

As late as the year 1856 (the date of the Stowe disclosures) we find letters from Lady Byron to Robinson which are far from indicating any decay of her mental faculties. Here is one in which she speaks of her husband:

LADY BYRON ON HER HUSBAND'S CHARACTER.

BRIGHTON, March 5, 1855.

I recollect only those passages of Dr. Kennedy's book which bear upon the opinions of Lord Byron. Strange as it may seem, Dr. Kennedy is most faithful where you doubt his being so. Not merely from casual expressions, but from the whole tenor of Lord Byron's feelings, I could not but conclude he was a believer in the inspiration of the Bible, and had the gloomiest Calvinistic tenets. To that unhappy view of the relation of the creature to the Creator I have ascribed the misery of his life * * * It is enough for me to remember, that he who thinks his transgressions beyond *forgiveness* (and such was his own deepest feeling), *has* righteousness beyond that of the self-satisfied sinner; or, perhaps, of the half-awakened. It was impossible for me to doubt that, could he have been at once assured of pardon, his living faith in a moral duty and love of virtue ("I love the virtues which I cannot claim") would have conquered every temptation. Judge, then, how I must hate the Creed which made him see God as an Avenger, not a Father. My own impressions were just the reverse, but could have little weight, and it was in vain to seek to turn his thoughts for long from that *idée fixe* with which he connected his physical peculiarity as a stamp. Instead of being made happier by any apparent good, he felt convinced that every blessing would be "turned into a curse" to him. Who, possessed by such ideas, could lead a life of love and service to God or man? They must in a measure realize themselves. "The worst of it is, I *do* believe," he said. I, like all connected with him, was broken against the rock of Predestination. I may be pardoned for referring to his frequent expression of the sentiment that I was only sent to show him the happiness he was forbidden to enjoy. You will now better understand why "The Deformed Transformed" is too painful to me for discussion.

A BLUNDER EXTRAORDINARY.

ORDER FOR AN EXECUTION ISSUED BEFORE A TRIAL IS DECIDED.

The Louisville Express of Tuesday has the following: We announced yesterday that the mandate of Gov. Stevenson, ordering the execution of William Kriel, the wife-murderer, had been received by Sheriff Martin, and that Kriel was to be hung in September. The statement had an extraordinary effect. The prisoner became greatly excited, and, for the first time, displayed emotions of fear. The Sheriff looked grave and sad over the prospect of sending a human soul into eternity, while the prisoner's counsel, Gen. Jackson, was amazed and indignant, as he was satisfied it was an official blunder. Kriel was convicted by the Jefferson Criminal Court, and sentenced to be hung. Application was made for a new trial, which was overruled by the Court. An appeal was taken to the Supreme Court of the State, which sustained the decision of the lower court. Subsequently a petition was submitted for a rehearing before the Supreme Court, which has not yet been acted on, the Court being now in the enjoyment of its vacation. Under the law it is the duty of the Clerk of the Court of Appeals 30 days after the disposal of such a case to certify the fact to the Governor, who then issues his mandate to the Sheriff of the county, as was done in this case. And the Clerk of the Court, it seems, not being advised or aware of the petition for a re-hearing, certified the case to the Governor as having been formally disposed of by the court. The Governor's duty was plain, and he did his duty. But there must have been a loose mode of conducting business in the Court of Appeals, where the fault evidently lies, to have allowed such a fearful blunder. Gen. Jackson telegraphed to Judge Duvall, the Clerk, to enlighten him as to the status of the case, to which he received this response:

"Mandate in Kriel's case issued by mistake. Will be corrected immediately. A. DUVALL."

So Kriel will remain where he is until the Court takes action on the petition for a rehearing of the case.

A PAIR OF BLOOMER GIRLS IN WISCONSIN.

In our rambles "Up the Chippewa," in Northern Wisconsin, a few days ago, we chanced upon a husky, brown-faced girl plowing out a twenty acre corn field. She was rigged in a snuff colored "bloomer," with a straw hat, and good, honest number seven boots. She was evidently all girl, and working with a will. She had been in the field since early morning, taking long strides behind a spirited horse, with the lines thrown across her shoulder, and both hands firmly at the plow. It was just "good fun," she said, to take care of 20 acres, and away she strode through the long rows—turning corners, kicking over sods, and never a thought of rest or "whoa," till the dinner-horn sounded across the field. On inquiry, we learned that our corn-field heroine was one of two New-Hampshire girls, who migrated with their parents to Eau Claire some dozen years ago. They bargained for a quarter section of wild land, and set about making a farm. There were no boys in the family. The girls were young, bright, healthy, and full of pluck and vigor. Their mother dressed them in bloomers, and gave them their choice indoors or out. From the start, they took the place of boys; they were not afraid of dust or sunshine; they never complained; they never tired out; they seldom missed a day from the fields through all the the seasons, from earliest Spring to latest Autumn. As they grew older, they grew tough and wiry, and were alike ready at handling teams, breaking colts, building bridges, opening roads, fording creeks, clearing meadows, loading hay, binding grain, or mounting a straw stack. In good seasons they cut 80 tuns of hay and 80 acres of grain. In rainy seasons they had to bring out their hay "by hand," carrying it on poles, knee deep through sloughs and marshes. In Winter they attended school, and took care of 60 head of cattle, drawing hay from the swamps in the coldest weather. They hired no help except at harvesting. They did their own trading and marketing, and could never be outwitted by any of the store chaps at Eau Claire. The girls are now 18 and 20 years of age, and have done more farm-work than any two boys in the county. Their father, beginning with nothing, is now rich, with broad fields, and thousands of ready stamps, mostly achieved through the grit and energy of his daughters. During the present season the girls have "let up" a little on their out-door accomplishments, and are only cultivating twenty acres of corn for their own amusement. They have built them a spacious residence. They attend balls and parties, go trouting, drive their own teams, and occasionally give the boys a chance to show their spunk and gallantry. Of course such girls are objects of excitement and interest in their neighborhood. They are looked upon as "capital prizes," and young fellows are ready to break their necks for them. They are now right in their freshest bloom, with thoughts of love and romance, and what may seem strange, they are neither coarse nor masculine in appearance; they are simply round, trim, sprightly girls, with resolution in their eye and plenty of good sense in their heads. It may be interesting to female politicians to know that these Chippewa Valley girls never whine or declaim about their "rights" or "position." They saw rough work to be done—work most needed in our Western country—and, asking odds of nobody, they went in bravely on their muscle and did it. They have made no noise about it. They have not cackled at Conventions. They have never sat with Miss Anthony or Lucy Stone Blackwell. They have fairly won a much higher seat among the queens of American Industry. [Evening Wisconsin.

Nathan James Clifford, esq., late Clerk of the United States Circuit Court, Massachusetts District, and son of the Hon. Nathan Clifford, Associate Justice of the Supreme Court of the United States, died at Augusta, Me., on the 16th inst. Mr. Clifford formerly resided in this city, and was well known in the legal profession.

THE COAL TROUBLES.

NOTES FROM THE MINING REGIONS—FALSE REPORTS OF VIOLENCE—THE POINTS OF DIFFERENCE BETWEEN THE OPERATORS AND THE MINERS—FACTS AND FIGURES.

HAZLETON, Luzerne Co., Pa., Aug. 20.—The strike among the coal-miners, or rather among the coal-operators, still continues, and there is no prospect of a settlement of difficulties under two or three months. The operators say that thus far they have been dictated to by their laborers—henceforth they are determined to manage their own affairs as they see fit. If necessary, they will call on the Government to protect them. Great excitement prevails among the operators, and rumors are flying in all directions. I was informed on arriving here that riots had occurred the day before and that the engineers were breaking the pumps and driving their successors away. The hotels are full of people talking about the basis, and damning the miners and the newspapers. The operators say they would like to see James Gordon Bennett come up and nail their ears to the lamp-posts. Hearing that the police had been driven away from the pumps at Harleigh the night before, I started for the mines. Stopping at a store just this side of the village, I learned that no disturbance of any kind had yet occurred, but that a fight might take place at any moment. A squad of policemen had been sent out the day before, but they secreted themselves under a train of coal cars during the night, and at dawn they left for Hazleton, whence they came. The clerk of the store advised me not to go into the village, as the "Buckshots" were skulking around, and they might "punch a stranger in the head," and make away with his horse and buggy. This being in the newspaper line, I immediately drove up to the drinking saloon where the Buckshots were said to be stationed, and inquired for one of the engineers who had left the pumps. After talking with him for a few minutes, I invited him to take a ride over to Milnesville, where other difficulties were reported. My friend, the Buckshot, was quite tame, and I soon discovered that he was not at all dangerous. He said that they (the engineers) felt rather sore to have strange men come in and take their places; still, they were not going to make any demonstrations whatever. If the operators wished to pump the water out of their mines, they could do so in peace. Milnesville is half a mile from Harleigh, and Harleigh is two miles north of Hazleton. Both of the former places have about 150 inhabitants each, and the houses are rough, unpainted structures, surrounded by small vegetable gardens. The miners had innumerable stories to tell about the meanness of the operators, whom they said would be glad to get them to work for 50 cents a day were it possible. The "strange men" in charge of the pumps said that thus far they had not been attacked, though they were frequently insulted by the miners and their wives. The woods were full of Buckshots, and they knew not when they would be fired on. "We are going to get out of this to-night, whether the operators like it or not. If they think that we are such fools as to stay here and be shot, they are mistaken." The miners declared that they had no intention of attacking any one, and they said that the stories circulated by the operators were false in every particular.

For four hours I had been chasing a lie over the country, and found at last that the armed Buckshots and the broken pumps existed only in the imagination of the operators and their friends. Having to go about a half a mile through the woods, I gave the reins to my friend, the Buckshot, and directed him to drive to the hotel and hitch. On returning, after an absence of an hour, I found the $500 "rig" I had hired at the livery stable, and my silk umbrella undisturbed. Certainly this did not quite agree with the stories I had heard about the dishonesty of the miners. The stores in these mining villages usually belong to the operators. Stepping into one I called for some apples. The clerk refused to take any pay, as he said they never received money at that store. This explanation was that the customers are mostly miners, and they pay up once a month, or rather the amount they owe is taken out of their wages. While I was present, more than a dozen persons came in to purchase, and every one of them brought little leather-bound memorandum books for the clerk to enter their purchases on. The miners made great complaint because the operators charge so much for their goods, and they said that before the Union was established, they were discharged if they went elsewhere to trade. The villages of this vicinity are hard-looking places for human beings to dwell in. The altitude is so great that the soil produces nothing but scrub oaks and pines. Vegetables seem to do very well, but there is no grass, and where grass will not grow desolation begins. Returning to this place I found the town full of rumors concerning the very localities that I had just visited. Yesterday afternoon I called at the coal office of A. Pardee & Co. to get some facts regarding the cost of mining and transporting coal to market. The bookkeeper could give me no information, as "their" books were kept in Philadelphia, but he presumed that the desired information could be obtained at the office above. Before reaching "the office above" I was overtaken by a gentleman from the office I had just left, who said that he would be happy to give me all the facts he had. He was in the front office when I called, and it was only by chance that he heard my inquiry. So I went back, and had the pleasure of learning that "some fellow" from THE TRIBUNE had been up the day before, and had written a lot of stuff which sounded ridiculous to one who knew anything about the strike. The gentleman was willing to show his books to any one, and prove that it was impossible for an operator to mine coal at the present basis without losing money. It was impossible to satisfy the demands of the miners, and the only hope now lay in employing men outside the Union, with the aid of the militia. They had found that what the miners called a tun was not a tun; consequently, they were losing much by short weight. In proof of this, they presented the following statement for July:

	No. tuns.
What the miners demanded pay for	32,017
Amount shipped by Pardee & Co.	30,255
Total loss	1,762

No explanation could be made which would satisfy the men that their account was incorrect; and in order to proceed without a strike the loss had to be sustained. Messrs. Pardee & Co. say that during the war they *did* make money at mining. In one year they shipped 560,000 tuns, realizing 50 cents per tun, or a total of $280,000. A million and a half was employed in the business, and there were ten partners. Since this time the miners seemd to think that they have continued to make in like proportion. G. B. Markle & Co. give the following statement:

Cost of mining	$2 50	Excess of tunnage paid the men, 10 per cent	70
Royalty on mine rent	50		
Tolls to Port Johnson	3 80	Total	$7 75
Expenses selling coal	25		
Total	$7 05		

Thus it will be seen that to get a tun of coal to New York cost $7 75 according to the operators' story.

Pardee & Co. give the following statement:

	Per Tun.		
Expense of mining last year	$1 40	No. tuns shipped	6,342
Tolls to Mauch Chunk	60	Loss	802
Royalty to mine owners	40	OAK DALE MINES.	
Advance since last year	1 40	No. tuns paid for	7,490
Tolls to New York from Mauch Chunk	3 20	No. tuns shipped	7,158
		Loss	332
Total cost of coal in New York	$7 00	RED ASH MINES.	
Other mines report as follows:		No. tuns paid for	5,188
JEDDO MINES.		No. tuns shipped	4,567
No. tuns paid for	7,724	Loss	611

The Harleigh Coal Company say that they shipped last month 9,000 tuns. The men were paid for 10,500 tuns. Their total loss was $2,000. At their request I give a part of their pay-roll for twenty days' work in July:

Chas. Boyle	$191 25	E. Lemmerhart	$123 54
Owen Boyle	104 93	M. Monahan	165 86
John Brennan 2d	137 42	Wm. Moran	243 55
John A. Brennan	243 52	M. McNurtney	181 42
John Brennan 3d	184 40	Daniel McAlmo	139 20
Patrick Burns 1st	155 19	John McKelvy	139 20
Peter Barker	274 35	John McCaffrey	178 36
James Bener	110 34	John O'Donnel 2d	110 71
Martin Corrigan	274 36	Henry Pforr	146 14
Patrick Campbell	162 58	Wm. Pitton	157 58
Patrick Carrol 1st	179 36	John Kremiller	181 43
Patrick Carrol 2d	178 76	James Rogers	110 66
Owen Connor	115 02	John Kisthart	211 19
Henry Caswell	127 50	Curdy Kelley	160 34
Michael Dugan	218 44	Isaac Ray	142 60
Chas. Duramy	122 22	Anthony Stiff	170 88
Col. Duffy	202 79	Daniel Scanlan	189 45
John J. Erand	151 65	Caspar Shaffer	146 14
Daniel Edwards	142 59	Phil. Thomas	157 57
John Gillespie	133 61	Richard Williams, sr.	151 64
David Hire	124 14	Richard Williams, jr.	130 26
Dennis Houston	122 23	Thomas Williams	151 65
John Hildebrant	128 61	Lewis Williams	145 27
John Jones	124 14	Fred. Wenty	127 49
Jas. Job, sr.	114 29	Wm. Walker	114 89
Jas. Job, jr.	155 05	Richard Watkins	143 17
Daniel Kisthart	162 50		

These figures certainly show that the miner gets good wages, but it must be remembered that the cost of tools, labor, &c., amounting to $4 75 per day for each miner, has to be paid out of his gross earnings. Besides the above are the highest wages received. The reason, why there is a difference between the miner's tun and the operator's tun is because the coal is washed and screened after it leaves the mouth of the pit; consequently there is a loss of about ten per cent. The miners claim that they should be paid for what coal they mine, and not for what the operator finds after he has prepared it for market. As regards the basis which the miners claim, the coal operators say that they have demanded a higher basis than the original one. They understood that the men claimed 12½ per cent on the cutting price per tun (which is 60 cents) on each dollar of advance in the price of coal, while the men claimed 12½ per cent of all money received for coal above $5 at Elizabeth. Here is what the operators proposed at a meeting held on the 12th inst.:

Whereas, The result of the last month's working under the Basis and Regulations of the Miners' Union has demonstrated to us that we can no longer carry on our works and do justice to the public or ourselves on this basis—therefore be it

Resolved, That the price of coal at Mauch Chunk as fixed by the Operators' monthly meetings in Philadelphia shall be the basis upon which the rates of wages shall be calculated.

Resolved, That the basis be fixed at the average price of Lump, Broken, Egg, Stove, and Chestnut at Mauch Chunk in April last (which average was $3 50 per tun) and the wages, car price, and yardage on that basis and 10 per cent above April wages—advancing or receding as coal advances or recedes in price; and 10 cents per tun to the miners for each dollar of advance or fall in price at Mauch Chunk, and 12½ per cent on the basis price of wages to inside and outside laborers—except for engineers, mechanics, and others regularly employed, who shall have April wages as a basis and an advance of $1 per week for each dollar of advance in coal and a proportionate reduction on the decline of coal, and that no change in wages shall be made unless the rise or fall in the price shall be 25 cents per tun, and that the wages fixed at or about the first of each month by the meeting of Lehigh Operators for coal sold at Mauch Chunk during that month, shall be the rate of wages to be paid for that month, whether coal rises or falls during that month.

Resolved, That in the estimated tunnage of cars 48 cubic feet shall be allowed as one tun, that being the average number of feet for a tun as shown by the result of last year's work.

Resolved, That we will not employ men from other collieries or from other regions who are on a strike.

Resolved, That we will allow no interference with our business, either by restricting the amount of coal to be produced, or in the employment or discharge of men, and that all rules and regulations in force at the different collieries for their government in April last shall continue to be observed.

Resolved, That the wages fixed as above shall be announced to the men on Friday, the 13th inst., to take effect on Monday, the 16th inst.

The truth is there are no two companies that pay the same wages. Some mines are harder to work than others, hence the difference in prices. "The miners are so ignorant that you cannot make them understand anything," are the words heard on all sides. When a man who is not a member of the union obtains a job, he is warned to leave. The following notice was given me as a specimen of their style of doing business:

HAZLETON, Aug. 13, 1869.

Mr. John Giansons: Hereby we notify you to stop away off your work or you will have to take whatever you get. Yours.

The operators have so many different stories to tell as to the actual cost of preparing coal for market that it is hard to tell how much they make or lose. Most of them declare that the swindling is done at the other end of the route, and by the railroad and canal companies. Much of this is true, but to say that the operators are losing money on the present basis is not backed up by facts, for at this moment the mines at Janesville are in full operation, and so they are at Beaver Meadow. From the figures given above, we find that a rent or royalty of 50 cents per tun is given by the operators to the owner of the mines. This explains much. Suppose a mine yields 10,000 tuns each month, this gives the owner $5,000 a month. The Pardee Company say that they made considerable money during the war (50 cents per tun). Accordingly the men who own the mines make as much or more than those who do all the work. There are many companies, who not only own the mines, but they own the railroads and canals over which the coal is transported to New-York. In this case the fifty cents usually paid to owners was saved. Leaving the operators, we will go to the transportation companies, who are universally damned by the operators not interested.

The Mauch Chunk Gazette, the coal organ for this region, publishes weekly the tariff over the different routes. So it will not be difficult to ascertain what proportion of the profits on coal go into the great railroad and canal monopoly fund.

COAL FREIGHTS.

MORRIS CANAL.—MAUCH CHUNK SHIPMENTS.

New-York—		
Lehigh Canal Tolls	$ 71	
Morris Canal Tolls	85	
Freight	1 70	
Towing	10—3 36	
Consignee also pays unloading and wharfage.		

DELAWARE AND RARITAN CANAL.

New-York—	
Lehigh Canal	$ 71
Delaware Div. Canal	43
Delaware and Raritan Canal	57
Delaware and Raritan Canal Towing	20
Freight	1 40—3 31
Philadelphia—	
Lehigh Canal Tolls	1 14
Freight and Towage	1 15—2 29
Consignee also pays unloading and wharfage.	

BY RAILROAD FROM MAUCH CHUNK.

South Amboy—	
Lehigh Val., or L. and S. R. R. Tolls	$1 15
Bel. and Delaware R. R. Tolls	1 10
Camden and Amboy R. R. Tolls	50
Shipping	25—3 00
Trenton, New-Jersey—	
Lehigh Val., or L. and S. R. R. Tolls	1 15
Bel. and Delaware R. R. Tolls	1 10
Shipping	15—2 40
Elizabethport—	
Lehigh Val., or L. and S. R. R. Tolls	1 15
C. R. R. of New-Jersey Tolls	1 70
Shipping	25—3 10
Port Johnston—	
Lehigh Val., or L. and S. R. R. Tolls	1 15
C. R. R. of New-Jersey Tolls	1 80
Shipping	25—3 20
Hoboken—	
Lehigh Val., or L. and S. R. R. Tolls	1 15
Morris and Essex Tolls	1 80
Shipping	25—3 20

SCHUYLKILL COAL.

VIA CANAL—from Schuylkill Haven and Port Clinton:

	Gross Tolls.	Drawback.	Net Tolls.
Lump and Steamboat	$1 70	$ 00	$1 70
Broken and Egg	1 70	00	1 70
Stove	1 70	00	1 70
Chestnut	1 70	00	1 70
Freight from Schuylkill Haven to New-York			2 20
Freight from Port Clinton to New-York			2 15
From Port Carbon 3c. more tolls, and 10c. more freight.			
From Mt. Carbon 2c. more tolls, and 10c. more freight.			

To PHILADELPHIA:	Tolls.	Freight.
From Schuylkill Haven	$1 00	$1 00
From Port Carbon	1 03	1 03
From Port Clinton	1 00	1 00
From Mount Carbon	1 02	1 03

The captain unloads out of above rates.

VIA R. R. TO PORT RICHMOND—FROM POTTSVILLE:

	Gross Tolls.	Drawback.	Net Tolls.
Lump and Steamboat	$2 50	$ 00	$2 50
Broken and Egg	2 50	00	2 50
Stove	2 50	00	2 50
Chestnut	2 50	00	2 20
Shipping at Port Richmond			22½

To Philadelphia 18 cents per tun additional.
Tolls from Schuylkill Haven 7 cents less.
Tolls from Tamaqua 7 cents more.
Tolls over lateral Railroad 1½ cent per tun, per mile, to Reading Railroad or Canal.

TOTALS TO SHIPPING POINTS—FROM MAUCH CHUNK

To Elizabethport	$3 10	To South Amboy	3 00
To Port Johnson	3 20	To Trenton	2 40
To Hoboken	3 20		

The actual cost per mile, per tun, for transporting coal by rail, is 8 mills or 8-10 of a cent. The distance from Mauch Chunk 121 miles, making the actual cost of carrying coal to New-York 96 cents 8 mills per tun. The President of the Baltimore and Ohio Railroad says that the Pennsylvania companies pressed the corporation which he represents to advance their freights $1 per tun, making a difference of $150,000 per month. The Philadelphia and Reading Railroad to-day charges double the rate collected by the Baltimore and Ohio Railroad. The great cry in New-York, is "give us coal," and yet more coal has been shipped from this region during the month of July this year than there was last year at this time, as the following statistics will show. *The Miner's Journal* of the 14th, says:

The increase for the week from all the regions, as compared with the corresponding week last year, is 88,525 tuns; for the year, 197,832 tuns.

The Mauch Chunk Gazette of this date says that

The whole amount of coal forwarded south from Mauch Chunk last week was 126,711.91 tuns against 91,577.05 tuns for the corresponding week last year, an increase of 35,133.18 tuns. The total amount sent to market through this valley for the year is 2,220,270.05 tuns, an increase of 126,324 tuns over the amount sent up to the same time last year.

There is more at the mines where the men are at work than can be shipped at once. It is being whispered that some of the operators are in league with some of our railroad companies and with a lot of New-York speculators to "bull" the market. It is said that thousands of tuns are lying between here and New-York awaiting a rise in the market. I have been repeatedly shown documents proving that the operators only received $7 20 to $7 40 per tun for coal when it was quoted at $7 50 at Elizabethport, and yet the people of New-York were paying $10 at that very time. The commission dealers sell for 25 per cent, the coal dealers say they are losing money, and the operators want to sell out.

At each end of the great chain of monopolies extending from the City of New-York to the coal fields of Pennsylvania a wail goes up for bread and coal. Ignorance and rum are said to be the cause of destitution among the poor of both sections. The operators take no pains to build school-houses or to teach the men who make them rich. The railroad companies put on more tariff as the price of coal goes up in New-York, at the time when the poor are the least able to pay their extortions. The clumsy attempts which the laborers make toward getting an education are ridiculed instead of encouraged. The miner is said to have no soul, and his children are called blockheads, good for nothing except to pick out slate and learn the trade of thier father. As one walks between the long rows of unpainted houses, and comprehends the dreariness attending the life of a coal miner, he cannot help but hope the day will come when white cottages and cultivated gardens will take the place of these miserable shanties. The coal miner is just like any other man. Give him a chance and he will improve. Can we wonder that they continue to ask for more wages, so long as they are under their present teachers? The lessons taught by the operator, the railroad company, the commission dealer, and the speculator, are as fruitful of vice as are the dens of the gambler in New-York. Great complaint is made if the miners say who shall work and who shall not, yet there is not a company in the land that can build a railroad to Mauch Chunk or to Scranton unless the other companies will give their assent. If a new coal company is started, all of the other companies will break it if they can. "You tickle me, and I won't tickle you," is the style among the monopolists now days.

RAILROAD TIME TO CHICAGO.

THE COMPETITION—REDUCTION OF THIRTEEN HOURS.

The great railway companies are now engaged in active competition on time. The Pennsylvania Central Railroad Company are now taking passengers between the two cities in three hours less time than those make who go in and out of New-York by the Hudson River and New-York Central Railroads. Next week the Pennsylvania Company will shorten the time five hours more. To meet this it is understood that the New-York Central and connecting companies will one week from Monday next put on a fast line between Chicago and New-York, running both ways, and making the distance in *thirteen hours* less time than it is now made, thus beating the fastest time made by the Pennsylvania road five hours. This train will be composed wholly of Drawing-Room or Palace cars, for which each and every passenger will pay the usual fee for the use of such cars. These will be essentially through trains, seeking no local business, and taking only such as cannot be avoided. It is understood that this new train will at first run only over the Great Western or northern route from the New-York Central, because those companies have the cars, but the Lake shore or southern companies will procure cars and put them on as soon as possible. The schedule has not been made for this train over the Central and Hudson River roads, but it is understood that it will be a day train in and out of New-York. It will probably leave New-York about 11 a. m., dine at Albany, and take supper at Rochester at 9 p. m. Going down, it is expected to pass this city at 7:30 a. m. (breakfasting here), and reach New-York at 6 p. m. The increase of actual speed in the motion of this new train will not be so great as may be supposed. Much of the time will be saved in reducing the stoppages, which will be as few as possible. The train will only stop once between Suspension Bridge and Rochester, and that for wood and water, and once between Rochester and Syracuse. [Rochester Union.

THE FREIGHT TARIFFS.

During the heated term, when it is seldom that the newspapers have to record anything but general dullness, not to say stagnation, in nearly all branches of business, it is cheering to find that in one business at least dullness does not prevail. According to the statements made by the General Freight Agents of the New-York Central, the Hudson, and the Erie Railways, it appears that the freight business at present is so heavy as to severely tax the capacity of the roads. This pressure is due mainly to the low tariff, which, it is said, will be abolished to-morrow, although there is a probability that the proposed increase will not be agreed upon before Sept. 1. The prices charged by the Pennsylvania Railroad are: 1st, 2d, 3d, and 4th classes to Chicago, 50 cents per cwt.; 1st, 2d, 3d, and 4th classes to St. Louis, 60 cents per cwt. The prices bulletined at the Erie and New-York Central depot are alike, and as follows: All classes to Chicago, 25 cents; all classes to St. Louis 35 cents. To give an idea of the freight business, it may be interesting to note the transactions of the various railways, as far as they can be obtained. The Erie Railway sent out from Jersey City 15 trains, averaging 18 cars to each engine, on Wednesday, and the Superintendent of the road states there are now upon the route at side switches between Port Jervis and Jersey City alone, about 200 cars filled with Eastward bound goods, which he is unable to bring to Jersey City, until the storehouses of the Company at this end of the line are cleared of Western bound dry goods and general merchandise. The Hudson River Railroad is averaging 225 cars of Western goods daily, about 150 of which are consigned to Chicago and St. Louis. The number of carloads shipped on Wednesday was 264. H. B. Claflin & Co., and A. T. Stewart & Co., have been obliged to keep their packers and forwarders hard at work for the last ten days, both day and night, owing to heavy orders for goods from the West.

THE SCIENCE ASSOCIATION.

THIRD DAY—AMERICAN SHIPS—THE TIDES—INFLUENCE OF THE MOON AND PLANETS ON THE WEATHER—THE TRICHINA SPIRALIS—MINERAL RESOURCES OF CHINA—PRESIDENT GOULD'S ADDRESS.

SALEM, Mass., Aug. 21.—The Association now meets in three divisions, Section B having been subdivided and a new section of Archæology and Ethnology constituted. An immense amount of work is done. The proceedings, if reported in full, would fill three or four pages of THE TRIBUNE, even if printed in the smallest type. It is therefore necessary that the abstracts of the various papers read should be brief, and in the case of some very abstruse subjects no abstract whatever has been attempted. The titles of all papers read will be given in full, and a summary appended of the substance of such as are of most general interest to the public at large.

A short general session was held as usual at 10 o'clock, Col. Foster presiding. Several new members were chosen. A letter was read from Mayor Shurtleff inviting the members to visit the public institutions of Boston. The communication was referred to the Standing Committee, with directions to report on Monday evening. A letter was also read from the Hon. Marshall P. Wilder inviting the members to visit the Floral Exhibition of the Massachusetts Horticultural Society, which is now being held in the Horticultural Hall, Boston. The general meeting then adjourned, and the regular work of the Association was resumed in the various sections, Section C. meeting in the vestry of the Tabernacle church.

SECTION A.

Prof. J. H. Coffin of Easton, Pa., was Chairman for the day. Prof. Coffin also read the first paper, on the Arctic Winds. He said he had received much additional information relating to the winds of high northern latitudes, the results of which would be given in a work to be published by the Smithsonian Institution. The remaining papers, of which the following are the titles, were read in the order in which they are printed. Brief abstracts of the more important are appended:

Longevity of American Ships, with the Approximate Law of their Loss or Decay. By Mr. Ezekiel B. Elliott of Boston. Mr. Elliott's results were obtained from the histories of 26,737 vessels, of which 4,165 are still in existence. He has worked out a table showing that out of 1,000 vessels 584.4 survive 10 years, 219.5 20 years, 57.2 30 years, 11.1 40 years, and 0 50 years. The average duration is 13.8 years. A vessel which has been built 10 years exists on an average 9.3 years longer. The "expectation of life" at 20 years is 7.2 years; at 30 years, 6.2; at 40 years, 2.7.

On the Values of the Standard Monetary Units in which securities of the United States are quoted in certain commercial centers of Europe, by Mr. Ezekiel B. Elliott. These values were given in Mr. Elliott's paper as follows: In London the 54 pence sterling at which the dollar is rated are really equivalent in our gold coin to $1.095; in Frankfort, the 2½ silver guilder to $1.0144; in Paris, the French equivalent, to $1.09645; in Antwerp, $1.0226; in Bremen, $1.0989; in Amsterdam, $1.0065; in Berlin, $1.0059; in Hamburg, $1.0771. Thus, to obtain the real value at which our bonds are held in London, it is necessary first to multiply the cable quotation by $1.095; and then to multiply the result by the value of gold coin in currency. For example, five-twenties of 1862 closed yesterday in London at 84; which, multiplied by 1.095, and the product thus obtained multiplied by 1.33, gives 122.33 as the London value in our currency. The quotation of the same security in New York last evening was 123.

A Demonstration of Euclid's Assumption Relative to Parallels, by Prof. A. C. Twining of New Haven. The assumption referred to is, that "there can be but one parallel to a given line through a given point." This is an axiom in the old geometries, and Prof. Twining would doubtless deserve the gratitude of all future "sub-freshmen" by letting it remain so.

Some Results of the Discussion of the Boston Dry Dock Tide Observations, by Prof. William Ferrell of Cambridge. This, at all events in the opinion of Prof. Peirce, is one of the most valuable papers yet read before the Association. Prof. Ferrell said that the moon's mass, as obtained from the Discussion of the Dry Dock Tide Observations, was the one eighty-first part of the earth's mass. He stated there were very remarkable peculiarities in the Boston tides. There were no other tides in the world of which the observations have been discussed, at all similar. The semi-monthly inequality, which is usually about three times as great as that depending upon the moon's parallax, was in this case much less, the range of the former being only sixteen inches, while that of the latter was nearly twenty inches. On this account the rules of almanac-makers, which makes the largest tides about a day and a half after the new and full moons, and which are correct for all ordinary cases, entirely fail in the case of the Boston tides. In cases in which only a rough approximation is aimed at, and consequently only one inequality is taken into account, should be the greatest, and therefore the largest tides should be put near the time of the moon's perigree, and the smallest near the time of the apogee. He gave a case in which a man on the seacoast lost a large amount of hay by relying upon the predictions of the almanac, and stated that this case showed the importance not only to commerce, but even to agriculture, of having a more correct knowledge of the peculiarities of the tides. The discussions with regard to a change of mean level did not indicate with certainty either a rise or fall of the continent, as had been observed in many parts of the world. They rather indicate slight rise of the continent, so that it might at least be inferred from this result that Boston had not been going down the last nineteen years.

The Laws of the Deflection of Beams tested by Experiment. By Prof. W. A. Norton of New-Haven. This paper embodied the principal results of a series of experiments which he had made to test the theoretical laws of the deflection of beams exposed to a transverse strain. In the experiments the beam rested on the supports at the ends, and was loaded in the middle. The accepted formula gives the following laws: (1) The deflection is proportional to the pressure; (2) inversely to the breadth; (3) and to the cube of the depth; (4) directly proportional to the cube of the length. The results of the experiments (fully explained by diagrams and tables) show that the deflection is approximately proportional to the pressure, but, strictly speaking, increases according to a less rapid law, the neutral axis of the cross section of the stick shifting its position, and its distance from the center of gravity of the cross section augmenting. As to the second law, the deviations are not greater than may be attributed to differences in the moduli of elasticity of different sticks, and the greater shifting of the neutral axis of the sticks most strained. The third law cannot be regarded as even approximately true, except in case of sticks whose length bears a high proportion to their depth. The fourth law fails as well as the third. Prof. Norton has made, with the same apparatus, a series of experiments on the degree of set or residual deflection communicated to sticks by varied strains and under varied circumstances, and obtained interesting and curious if not important results. But these he did not enter upon at this time.

Notes on the Chemistry of Copper. By Prof. T. Sterry Hunt of Montreal.

On the Velocity of the Electric Current over Telegraph Wires. By Prof. G. W. Hough of Albany. He said that the apparent velocity of the electric current was directly proportional to the magnetic force of the current. This was shown to be the fact from a large number of experiments made over lines of different lengths. He also stated that the real velocity of the wave had never been measured, but the velocity observed was due to the difference of mechanical effects produced by the current when the line was opened at alternate ends. He also spoke of his obligations to the W. U. Telegraph Co., and especially Mr. C. S. Jones, manager of the Albany office, for the use of the necessary wires.

An Improved Method of Observing Meteoric Showers. By Prof. David Murray of New-Brunswick, N. J. Mr. Murray would prolong the cylinder of the chronograph now used, and attach a key for each of the four quarters of the heavens, that four operators might note their own observations directly. The length of the mark might indicate the duration of visibility, so that observations made in different sections might be compared and altitudes computed. Another signal might be adopted to show that meteors came from an abnormal point.

Planetary Influence on Rainfall and Temperature. By Mr. Pliny E. Chase of Philadelphia. Mr. Chase has found, by examining the records kept at the Pennsylvania Hospital for forty-four years, confirmation of the conclusions of Loomis and others, that cloudiness, rainfall, and temperature are each controlled, to some degree, by the lunar phases. Also, marked evidences of the establishment, or local influences which modify the results at different stations, often occasioning an entire opposition of curves, especially on opposite sides of large bodies of water. These establishments are due not only to position, but also to the season of the year. These results, with a certain degree of opposition between the lunar curves of rainfall and temperature, seemed to indicate a partial dependence of the temperature influences upon the tidal currents in the atmosphere, as well as upon direct radiation. Applying the same process to the case of four planets, results were obtained similar, and even more strongly marked. In the discussion which followed the presentation of the above views, it appeared that several of the scientific gentlemen present had from time to time instituted examinations to establish an influence on the part of the moon and planets over the weather, but had been unable to arrive at anything satisfactory. The general opinion was that no such influences existed; that if they did exist, they were trifling in amount; and that to establish beyond question that there were such influences, it would be necessary to a continuous series of close observations for several centuries. In this matter, a little learning was, if not a dangerous, decidedly a worthless possession.

On a New Method of Producing by the Electric Spark Figures similar to those of Lichtenberg—By Prof. Blake of the Cornell University, Ithaca, N. Y. Figures have been produced by allowing the electric spark to strike on the surface of pitch or any other non-conductor, and then sprinkling the surface with fine dust. The electricity retained on the non-conducting surface attracts the dust to itself, and a figure is thus formed. When the electricity employed was *positive*, the figure was a star with many rays; when *negative*, a ring or wheel with more or less curved spokes. These are the figures of Lichtenberg which, since their discovery in 1779, have excited a great deal of interest, and have been the subjects of elaborate investigations. In 1862, Prof. Rood of Columbia College showed that figures similar in form were produced by allowing the spark to fall on a sensitized film of collodion and developing in the ordinary way like a photograph. The object of Prof. Blake's paper was to describe a third method by which similar figures are produced. If a coating of pitch be spread by heat over one side of a piece of sheet tin, and on the pitch surface thus prepared, when entirely cold and hard, an electric spark be allowed to fall, no visible effect will be produced. On holding the plate (metal side down) over a lamp for an instant, the pitch becomes softened and beautiful figures suddenly appear on its surface, as if impressed there by an engraved seal. Specimens of these in great variety were shown to the audience, and excited general admiration for their sharpness and beauty. The figures are, for pos. electricity, a star with many rings; for neg. electricity a ring; but the lecturer explained that owing to the well known oscillatory nature of the discharge the figures consisted generally, if not always, of positive and negative figures superposed, the general aspect of the figure being determined by the kind of electricity employed. It was further shown that if the surface of the pitch be soft, by heat, *when the spark strikes*, that the figure is at once produced, and no "development" is required. Many modifications of the original experiment were described and illustrated by specimens of the figures produced. At the close of the reading, Prof. Henry of the Smithsonian Institution complimented the paper, and made some remarks on his own early discovery of the oscillatory nature of the discharge of the Leyden jar.

"A Formula for computing the time of Axial Rotation of any Primary Planet, its density and the relative force of gravity at its surface being given." Communicated for Ira Wanzer of Lanesville, Conn., by Prof. Wm. A. Rogers. Prof. Rogers stated that Mr. Wanzer was a plain farmer, 73 years old, living at Lanesville, Conn. Receiving an injury about three years since, which confined him within doors for several months, he occupied his time with astronomical investigations. Possessing only the ordinary American text-books on astronomy, the data which he employed was not always the best or most trustworthy. The manuscripts which he prepared at that time came into the hands of Prof. Rogers, with the request that he would examine them with reference to their publication. He had, therefore, been induced to investigate the matter. He thought the results worthy of presentation at least, as showing what an old man without the advantages of a mathematical education had been able to accomplish.

Suggestions on the Theory of the Composition of Forces. By Prof. F. W. Bardwell of Jacksonville, Florida.

On the Ethereal Medium. By Prof. Samuel D. Tillman of New-York. An abstract of this paper will be given in the next letter.

SECTION B.

Remarks on Trichina Spiralis. By Prof. J. Baker Edwards of Montreal. As a free collation of ham sandwiches is constantly on the table in the vestry-room of the Tabernacle Church, and is partaken of by hundreds of the members every day, the reading of Mr. Edwards's paper naturally enlisted profound attention. Mr. Edwards said: The occurrence of two fatal cases of Trichiniasis at Hamilton, Ont., and the successful treatment of several cases in Montreal, had drawn fresh attention to the parasite causing this disease; and as the researches into its natural history were somewhat scattered, a short *resumé* might not be uninteresting. The cysts containing this parasite, and forming its sarcophagus in the flesh, were observed and examined microscopically by Tiedman in 1822. These were found in human muscle after death, and occasioned much speculation as to their real nature. In 1835 they were minutely examined by Mr. James Paget, and described and named by Prof. Owen; but as there then existed no clew to their natural history, they for some years possessed no interest beyond the fact of their existence in human muscle, and their classification as a genus of Entozoa; belonging to the order Cœlelminthæ; family, Nematoidea. Herbst found, in 1851, that dogs, when fed upon parts of a badger containing these worms, became infested with them in their muscles. But it remained for Zenker, in 1860, to show that the human body became infected with these parasites in consequence of eating pork already containing them. Since this time thousands of deaths had been traced to this cause, which would previously have been attributed to typhoid, gastric, or rheumatic fever, paralysis, poisoning, or atrophy. Further researches by Virchow of Berlin and Leuckart of Giessen added greatly to our knowledge of the natural history of the species, and Prof Dalton had elaborately studied cases of the disease in New-York. *Trichiniasis* was now fully established as one of the "ills which flesh is heir to." In several hospital examinations of human bodies after death from various causes, from 2 to 3 per cent of adults were found to contain old incrusted capsules containing these worms, thus bearing evidence of the existence of this disease at some former period. In the Chicago market a medical commission found in the pork offered for sale 2 per cent of flesh thus infected. From these facts it might be inferred that the disease occurred much more frequently than had heretofore been supposed, but that it was wholly under peculiar circumstances that the worm breeded with such excessive rapidity as to cause fatal or even serious results. The cases of the disease which had recently occurred on this continent caused still further investigations to be made as to its character, the probability of its detection, and the means of cure. Of these cases, those which occurred in the West were fatal, but those in Montreal, being of a slight nature and speedily diagnosed, were treated successfully. The whole literature of the question had been searched for an explanation of the facts which presented themselves in the Montreal cases, and while they were found to be in general accordance with cases on record, in some respects they might be considered unique. The history of the Montreal cases might be concisely stated thus:

On Wednesday, the 24th of March, a family in a boarding-house partook of some hastily fried ham. Within an hour afterward two of the adults felt nauseated and had some pain in the stomach. One took a large dose of brandy, and vomited his dinner; the other felt only abdominal pain, spasms, and faintness. He returned from his work and went to bed. During the night his wife and wife's mother felt ill, and suffered from pains in the bowels, together with great feverishness and thirst. During the following day, five other persons, who had partaken of the same meal, suffered more or less from similar symptoms, and on the evening of Thursday called in a physician, who, after careful inquiry, diagnosed Trichiniasis, and called in a second opinion on the case. On Good Friday a slice of ham was submitted for microscopic examination, in which Professor Edwards discovered, after some hours' investigation, several characteristic specimens of Trichina spiralis. By Monday morning, with the assistance of his friend Mr. Ritchie, he had found several groups of Trichina, both in the free state and partially, as well as fully, encysted. These were during the same day shown to a considerable number of medical friends. It was evident that the disease was recent in the young pig from which the ham was taken, and that, being in the free and semi-encysted condition, the worms were in a condition to be aroused into action and activity in a much shorter time than had they been fully and calcareously encysted. According to Virchow and Zenker, the period of incubation of the cyst in the stomach is from six to eight days. This had been erroneously interpreted to mean that such a period must elapse before any marked symptoms can be recognized. Such a period of time, however, is meant to be inclusive of the reproducing power of each individual, from whose body successive broods of young, numbering from 100 to 200, are discharged. Dr. T. S. Cobbold had found a period of sixty-nine hours amply sufficient for the development of the young muscle flesh worms of the human subject into the sexually mature adult Trichina of the dog. If all the worms were calcareously encysted, a delay of from three to six days might be expected before intestinal irritation was a marked symptom. But in cases where the worms were young and free in the muscle, development might take place in a few hours, and rapid multiplication take place before other encysted worms were released from their capsules. Thus a succession of fresh irritations to the muscular and nervous system might be expected from the first few hours to a period of eight or ten weeks. In the fatal cases examined in Chicago and Hamilton no single case of encysted trichina was found in the flesh, but in the Montreal cases one or two distinct and complete cysts were extracted from the man's leg. This was eight weeks after eating the pork, and when the symptoms had somewhat abated, but considerable pain still felt in the muscles. The great shock to the system, which frequently terminates fatally, appears to result from excessive generation of the worms at any one period; thus young and healthy persons are frequently killed sooner than older and more feeble persons, the reason being that in the former case probably more food is eaten, digestion is more rapid, nausea more readily overcome by active exertion, and the breeding of the worms becomes excessive and continuous. In the Hamilton cases the young woman died in three weeks, while her mother survived six weeks after eating the fatal repast. In 1866 some valuable experiments were conducted, in reference to the propagation of these worms, by Dr. T. Spencer Cobbold, whose researches on Cestoid Entozoa place him at the head of English authorities on such subjects. After feeding animals with trichinous food, seven experiments on birds all proved negative. Three sheep, two dogs, one pig, and one mouse gave also negative results. Nine cases were successful, viz.: four dogs, two cats, one pig, one Guinea pig, and one hedgehog. While we might, therefore, conclude that birds and herbivorous mammals were very unlikely subjects for infection by this means, it was also found that other animals, as the dog and pig, for instance, might partake of the food and yet escape infection. This helped to explain the recorded facts that large parties have eaten of trichinous food in company, and some had been killed, others suffered slightly, and again some escaped altogether. Moreover, in the human objects examined post mortem, where the disease had not proved fatal, in some cases the cysts were by no means numerous, while in others they had been estimated at from forty to one hundred millions. The excessive alarm which was apt to seize the public mind by the discovery of a case here and there was not, therefore, justified by the facts when properly understood. At the same time, whatever means could be adopted by the public authorities to prevent its becoming a familiar disease in our new Dominion should be forthwith adopted.

Professor Agassiz hoped that these disclosures would not disturb the appetite of the public, for not pork alone but every kind of meat—fish, fowl, and flesh, contains such inhabitants—not trichinæ but similar in nature. He assured his hearers that none could eat fish without eating some hundreds of such little creatures, and that if anybody wished to surely to avoid such things they would have to abstain from all food. Prof. Waterhouse Hawkins also made a few remarks in criticism of American cookery.

On the Nature of Glands in Acacia and Cassia. By Prof. Thomas Mehan of Germantown, Pa.

Prof. B. Waterhouse Hawkins of New-York was introduced, and made some remarks on visual education. Through the organ of vision, he said, we took in a larger number of impressions with the least possible amount of fatigue than by any other means of absorbing knowledge. The valuable qualities of the eyes were in close association with the rights of women, and his idea of the rights of women was the increased power of their educational faculties in reference to children who so constantly sat at their mother's knees and asked questions almost invaluable about the nature of that which they saw but could not always understand. Such pertinent questions as, "Mamma, what is that creature?" or "Mamma, what is the good of this?" were too often evaded in consequence of the inability of mothers to read rightly the beautiful stories which nature presented. The powers of observation, he thought, should be more highly educated than those of the memory which we had found in so many instances failed in producing the results expected. He advised the establishment of museums in connection with large public parks, such as the museum in the Central Park in New-York, so that healthy exercise and amusement might be happily combined. While receiving impressions the powers of observation would be educated. Such institutions, he thought, would do more good than the reformatory institutions now existing; and he would have every name represented therein freely translated into simple and understandable language. The present modern system of education was false, he said, when it withdrew boys at an early age from their mother's influence, under the pretense that they must receive an education which it was impossible for woman to give. He would have all boys remain longer under the instruction of their parents.

The remarks of Prof. Hawkins brought Prof. Agassiz to his feet, who spoke with great enthusiasm as follows: "I am as convinced as a man can be that the system of public education is on the eve of a very extensive reform. The world has been taught words dictated by authority thus far. The world needs knowledge and training in independent thought, and it is only the study of nature which will give us the last. But I am satisfied that the basis of the future of education will be the contemplation of the works of nature—no longer the study of the languages, no longer the study of the human mind, no longer the process of mathematical reasoning, for though they must form a part of a liberal education, they should come after the organs have been trained through observation, and the mind taught to argue by comparing these observations."

"On the Valley of the Amazon." By Prof. James Orton. The reading of this paper was followed by an interesting debate, in the course of which Prof. Agassiz presented some of his opinions on the strata of that Valley, and alluded to his hard experience when he first propounded the glacial theory.

On the Distribution of Coal, Iron, and the Precious Metals in China. By Prof. Albert S. Bickmore, of St. George, Maine. The object of the paper was to show that, although China is and has been for many ages the most densely peopled area on the surface of our earth, yet her natural resources remain to be developed, and that these resources are so ample that there is a bright future for China now that the enterprise of Europe and America is to join hands with the untiring industry of her people. Prof. Bickmore, who has traveled very extensively in China, gave a full list of the localities where coal, iron, tin, copper, and other metals are found, and made some statements tending to indicate a great yield in all the mines.

On Embryonic Characters in American Salamanders. By Prof. E. D. Cope of Philadelphia. On the Metamorphosis of Siredon into Amblystoma. By Prof. O. C. Marsh of New-Haven. On American Phyllopod Crustacea. By Prof. A. E. Verrill of New-Haven. The two last papers were illustrated by living specimens, and followed, including the paper of Prof. Cope, by considerable discussion.

SECTION C.

This section was organized by the choice of Mr. E. G. Squier of New-York as temporary chairman. Mr. Squier, by request, addressed the members on the subject of the Migrations of Indian Tribes. He noted three centers of civilization, so-called, upon this continent. He regarded them, generally speaking, as of local growth, and due, except in the case of Mexico, almost entirely to local influences. The paper of Prof. Morgan of New-York "On Indian Migrations," was concluded and discussed. The titles of the other papers read are as follows:

Discovery of the Remains of the Horse among the Ancient Ruins of Central America. By Prof. O. C. Marsh of New-Haven. The discovery of fossil human remains, accompanying the remains of the fossil horse, seems to establish the fact that the horse existed and was utilized by the aborigines of the section previous to the arrival of the Spaniards and the European horse. A number of fossil remains from that section were exhibited by Mr. McNeal.

Physical Geography among the Aborigines of North America. By Prof. N. T. True of Bethel, Maine. On the